

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

690 Walnut Ave. St. 150

Vallejo, CA 94592-1133

(707) 649-5453

(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001150**Date Inspected:** 04-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2330**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:****CWI Present:****Yes No****Inspected CWI report:** **Yes No N/A****Rod Oven in Use:****Yes No N/A****Electrode to specification:** **Yes No N/A****Weld Procedures Followed:****Yes No N/A****Qualified Welders:** **Yes No N/A****Verified Joint Fit-up:****Yes No N/A****Approved Drawings:** **Yes No N/A****Approved WPS:****Yes No N/A****Delayed / Cancelled:****Yes No N/A****Bridge No:** 34-0006**Component:** Tower Mock Ups, OBG components**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) inspector, Scott Croff, was present at Zhenhua Port Machinery Company, Ltd (ZPMC) to observe the scheduled mock up construction and production construction of the SAS Superstructure.

Bay 3: The QA inspector observed ZPMC personnel operating the gantry mounted flux cored arc welding (FCAW) to make fillet welds on SP002-01. The QA inspector observed 3 welders, each operating 2 machines. The QA inspector was informed that the welders were Li Zhou Qian, Xin Meng and Li Shu Liang. The QA inspector observed that joints being welded were 014, 015, 018, 019, 022 and 023. The QA inspector randomly measured the travel speed of the gantry at 465mm per minute. The QA inspector attempted to observe the welding parameters when the welding stopped. The QA inspector noted that welding parameters were being measured and recorded by ZPMC person Guo Yang Wei. The QA inspector asked this person if he was a CWI or CAWI and the QA inspector was informed that he was not a CWI or CAWI. The QA inspector asked this person if there was a CWI or CAWI monitoring this work. The QA inspector was informed that there was a CWI monitoring the welding. The QA inspector was unable to get the name of the CWI. The QA inspector did not observe any other ZPMC personnel monitoring the work at this location while the QA inspector was present. The QA inspector was informed that welding procedure specification (WPS)-B-T-2132-2 was being used at this location. The QA inspector was shown a range of welding parameters that were written in chalk on the gantry frame. The QA inspector was unable to locate any printed WPS documents near this welding station.

The QA inspector Joe Lanz asked the QA inspector for assistance in identifying an indication that was being observed with ultrasonic testing (UT). The QA inspectors cleaned the ultrasonic couplant and residue from the

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weld faces to conduct a thorough visual examination of the weld. The QA inspectors identified a portion of the bottom of the complete joint penetration (CJP) weld that appeared to have 3.0mm deep lack of fusion. The QA inspector Joe Lanz showed this observation to the Quality Control Liaison (QCL) Lay Tau. The QCL was informed that the weld was visually non-conforming to AWS D1.5 2002 requirements. After these observations were made, the QA inspector conducted random visual examinations of similar completed welds that were accessible in Bay 3. The QA inspector identified several welds that have been visually inspected and accepted by CWI Xu Xian Ping. The QA inspector observed BP002-01-007 appears to have 2.0mm undercut and BP002-01-004 appears to have 1.5mm undercut. Both of these welds are CJP butt splices on T-stiffener flanges. The QA inspector informed the QCL Lay Tau of these observed welds. See the attached photos.



### Summary of Conversations:

As noted above, the QA inspector Scott Croff observed gantry mounted FCAW and spoke with the ZPMC person who was observed measuring and recording the welding parameters. The QA inspector was informed that Guo Yang Wei was monitoring this welding. The QA inspector asked this person if he was a CWI or CAWI. The QA inspector was informed that he was not a CWI or CAWI. The QA inspector asked this person if there was a CWI or CAWI monitoring the welding. The QA inspector was informed that there was a CWI monitoring the welding, the QA inspector asked where the CWI was but the ZPMC person did not know where the CWI was or what his name was. The QA inspector asked this person what WPS was being used. The QA inspector was informed that WPS-B-T-2132-2 is being used. The QA inspector was shown the chalk written numbers of what appear to be the parameter ranges for the WPS.

The QA inspector Scott Croff was asked by the QA inspector Joe Lanz for assistance in identifying an indication that was being observed with UT. There were conversations regarding the location of the indication and the possible causes. The QA inspectors decided to clean the welds and examine all surfaces of the CJP. The QA inspectors noted that near the weld access hole in the T-stiffener web there appeared to be lack of fusion between the weld and the base metal. This discontinuity was measured a 3.0mm deep and the QA inspectors believe that it was causing the UT indication. The QA inspector Joe Lanz then informed the QCL Lay Tau that the weld appeared to be visually non-conforming. The QCL Lay Tau then spoke with ZPMC technician Li Li Ming. They examined the weld and informed the QA inspectors that the weld needed to be repaired. Also as noted above, the QA inspector Scott Croff informed the QCL Lay Tau of the other welds that appeared to be visually non-conforming.

The QA inspector Scott Croff informed the QA inspector Bruce Berger of the above mentioned observations and

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conversations. The QA inspector also generated a summary report of these observations to be included in the daily shift notes. There were no other notable conversations during this shift.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Croff,Scott	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar,Robert	QA Reviewer

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